SOME RESEARCH ON CORPORATE SOCIAL RESPONSIBILITY AS COPING

By

Edward H. Bowman

June 1974 713-74

SOME RESEARCH ON CORPORATE SOCIAL RESPONSIBILITY AS COPING

By

Edward H. Bowman

June 1974 713-74

A paper to be delivered at The Conference on

"Management Under Discontinuity"

INSEAD, Fontainebleau, France

June 10-12, 1974

The author thanks his colleague, Professor Mason Haire, for help in this research, especially the section dealing with the food-processing industry. Thanks are also due Professors Alvin Silk and Zenon Zannetos for their helpful comments on an earlier draft of this paper.

Some Research on Corporate Social Responsibility as Coping

("Something old, something new, something borrowed, something blue")

By

Edward H. Bowman

The research described here is an empirical and theoretical extension of four published papers:

1. "Corporate Social Responsibility and the Investor," by E. H. Bowman, Journal of Contemporary Business, Winter 1972/73.

2. "Size and Composition of Corporate Boards of Directors: The Organization and Its Environment," by Jeffrey Pfeffer, Administrative Science Quarterly, June 1972.

3. "Consistency and Optimality in Managerial Decision Making," by E. H. Bowman, Management Science, January 1963.

4. "Is Pollution Profitable?", by J. H. Bragdon, Jr. and J. A. T. Marlin, Risk Management, April 1972.

The author feels that the appropriate model for research is the hour-glass. Relevant previous research is drawn in and exploited for the specific research undertaken. This specific research should then fan out, at least speculatively, to a wider range of issues. Therefore, the essence of the four previous papers will be set forth first (as the top of the hour-glass), before presenting the empirical work undertaken (the neck of the hour-glass), to be followed by some theoretical extensions and speculations (the base of the hour-glass). For

purposes of brevity, the presentation will take on the nature of axiomatic statements, especially where the previous papers have developed and justified the ideas at greater length.

Corporate Social Responsibility and the Investor
(All statements are quotations from the Bowman 1972 article)

1. This article draws on the research of a previous study done for M.I.T. (University Investing and Corporate Responsibility, 1971) which included: 1) fifty interviews with business executives, institutional investors, advocate groups, and governmental professionals; 2) analyses of these issues and actions taken received from sixty-five universities and colleges, and . . . 3) a survey of the literature, including books, journal articles, newspaper clippings, proxy proposals, and company releases. Added to this have been about a dozen interviews in Europe, largely with Belgian executives and institutional investors. What is offered then is essentially a broad, but casual, empiricism.

2. Corporate Social Responsibility is of course rather difficult to define briefly. For the moment let it be thought of as including the concern for the impact of all a corporation's activities on the total welfare of society. This paper (draws) rather heavily upon the economic concept of externalities . . . While most of the costs and benefits of a corporation's activities will be reflected on a corporation's books (costs and revenues, and subsequent profit and loss statements), some effects will not be so reflected, (social costs and social benefits), and are referred to as externalities. However, it should be made clear initially that while some analysts may define anything that ultimately benefits the corporation as not falling under the definition of "socially responsible behavior," i.e., because it benefits the company, this is considered as too narrow a method of definition here, and misses most of

the useful and interesting questions involved. In other words, the concept of (potential) externality will be used as a point of departure.

3. What do these positive and negative externalities mean to the corporation and its stockholders? Perhaps the first answer to this question is that there is the tremendous complication that many corporate activities in the general area of potential externalities -- pollution and disadvantaged employee training -- may in fact (affect) the corporation in many ways and over the longer run. In other words, what is truly an externality, which by definition means not (ever) to be reflected on the company's books, is very often difficult to ascertain.

4. The issue of whether the corporation does or does not benefit from these activities may depend importantly on the company's ability to "internalize" and "institutionalize" these benefits.

5. Whether or how much the company benefits may depend for many activities on the level of expenditure:

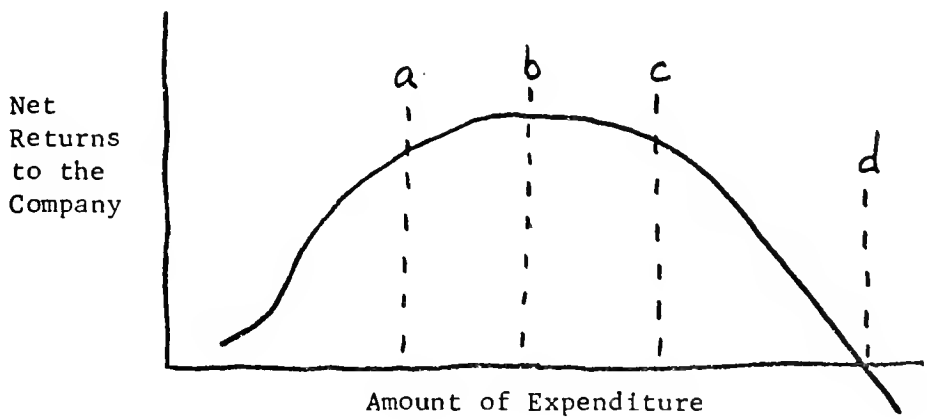


Figure 1

Up to some level of expenditure for many activities, including but not limited to issues of corporate responsibility, the company will receive a net benefit.

6. Economists tend to use the language for a company being beyond point "b" (in Figure 1) as a company "taxing" itself. The implication is that expenditures made for society's welfare (presumably) and with no economic return to the company is analagous to a tax levied on the company by its own management (and without political legitimacy and sanction). Though the concept may be useful, its place on the curve is extremely ambiguous due to the many kinds of "internalization" possible in our society (see "The Neoinvisible Hand" below).

7. Rensis Likert . . . writes in A New Rational for Corporate Social Policy, (1970), "Corporate sensitivity and responsiveness to reactions of its various publics, and to the effect of these reactions on its immediate and long-term profitability and success, depends on accurate information concerning these reactions and their financial consequences. Unfortunately these data do not exist today. Virtually every corporation is handicapped by inadequate and often seriously inaccurate information of these matters."

8. . . . The economist has traditionally argued for government actions to internalize the externalities, while the "managerialist" has argued for self-restraint and "social-concern" on the part of the businessmen. While partially accepting both of these positions, the argument put forth here is that many sectors of industrial society influence (constrain) the activities of business with a neoinvisible hand, not unlike the markets posited by Adam Smith. Any organization, commercial or otherwise, must maintain a "viable coalition" of all its constituents.

9. (Many examples given of the neoinvisible hand in the cited paper) . . . The essential point is not whether this was or was not an externality, but that it was a potential (positive/negative) externality . . . . The point made here is that many other potential actions (by the neoinvisible hand) exist for each of the actual ones. The latency of such power and actions is what normally supplies the neoinvisible hand . . . (The) corporation . . . can operate and survive in no other way than as a negotiated part of this environment.

10. . . . Cyert and March in A Behavioral Theory of the Firm, (1963), (suggest that) companies seek to avoid uncertainty in order to render the plans and activities which they do undertake, and for which they invest the "stockholder's" money, more certain of outcome. The major way they seek to avoid uncertainty is to have a negotiated environment.

11. It is (the) management/technostructure which sets the strategy of the modern corporation, not only economic strategy, but also technological, organizational, and social as well. The best modern practice recommended to these managers is that the various facets of their strategy be in fact "all of a piece," i.e., integrated. Only if the strategy is an integrated one, in both its economic components, but in these others as well, will it have a fair chance for survival . . . The neoinvisible hand, the negotiating constituencies of customers, union, communities, (free press, advocate groups), governments, investors, and employees will reinforce this strategic (integration).

12. Many people interviewed, both institutional investors in Europe and in America, indicated that an appropriate (underlining newly supplied for reasons which will become clear) concern for corporate social responsibility on the part of a company is a sign of good management and therefore

consistent with and necessary to a good investment . . . This view is widely shared and could be explained in a number of ways: a) good investments require good management, and good management is responsible, worldly, and modern, and these traits are evidenced by concern about and involvement in the general social/economic problems of our times; or b) profitable and successful companies have the resources to allocate a portion to social concerns, thus evidencing the power and flexibility of their resources; or c) corporate activities and expenditures for social concern at an adequate (underlining newly supplied) level are really in the self-interest of the firm . . . A somewhat different way to capture these arguments is that the risk associated with a given investment return is lessened with a company's adequate social concern . . .

13.

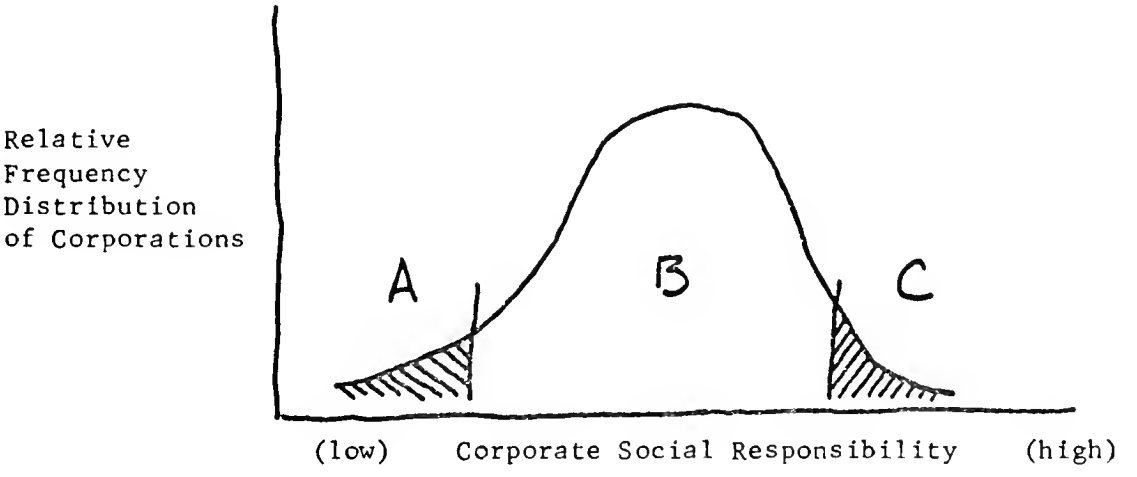


Figure 2

The graph in Figure 2, though overly simplistic, helps focus on two essentially different approaches an investor may take to the issues of corporate social responsibility, if he wishes to consider them at all . . .

note that no marker of a generally acceptable level or even the zero separation between positive and negative have been placed on the chart; it is not important to the argument here. From the large survey conducted for the report, University Investing and Corporate Responsibility, a fair conclusion can be drawn that the universities, by and large, concern themselves as investors with the small minority of corporations which they might individually place in category "A" - the "flagrant cases." These can be safely excluded from the portfolio, given the large number of alternative investments currently available, with no discernable effect on either the return or the risk of their portfolios (using the currently acceptable definition by financial economists for these terms). An investor, who to the contrary, (e.g., the "clean" funds) focuses on the small minority of corporations at the other extreme, category "C", by any scheme defined, the "outstanding social benefactor cases," faces a substantially different problem than that described as the typical university's approach. For many investors, a concern with category "A" (excluding only it) rather than category "C" (excluding "A" and "B") may be more sensible.

14. While many individual ideas are explored in this paper, two myths are particularly attacked: 1) that corporate social responsibility is dependent upon either and solely the noblesse oblige of the manager or the laws of the government, and 2) that corporate social responsibility is in fundamental conflict with the interests of the investor. These may be straw men, but they are seen often enough, either implicitly or explicitly, to warrant attack.

Size and Composition of Corporate Boards of Directors: The Organization and its Environment (all statements are quotations from the Pfeffer article)

1. When conditions of the environment have substantial impact on the organization, it is logical to expect that organizations will attempt to take

actions to ensure continued success and viability . . . . Thompson (1967) proposes that organizations seek to manage their dependence on the environment . . . Selznick (1949), in his study of the Tennessee Valley Authority, noted how an organization, faced with strong opposition, could partially neutralize it by bringing representatives of hostile groups onto the organization's governing boards. This case of cooptation illustrates another mechanism by which organizations can attempt to manage their environments.

2. This article considers the organization's use of the board of directors as a vehicle for dealing with problems of external interdependence and uncertainty, resulting from its exchange of resources with important external organizations. It is seen that the size and composition of boards of directors are consistent, in important respects, with hypotheses derived from a model of rational organization response to interdependence. More important, organizations that deviate more from an optimal or preferred structure in their board of directors tend to be significantly less profitable, controlling for industry effects, than those which do not deviate as much. In other words, it can be shown that corporate boards are used as if they were instruments with which to deal with the environment. When organizations fail to use this instrument accordingly, they pay a real penalty in the form of reduced profits.

3. . . . the notion of whether or not management is making full use of its board cannot be evaluated by board participation in management, but rather by how well important external organizations and groups are being handled.

4. . . . the board is a dependent variable reflecting the organization's perceived need to deal differentially with various important sectors or organizations in the environment. . . . there will be a contingency model of board size and composition, with the dimensions of the contingencies being the organization's relationships to its external context.

5. There are two distinct and not mutually exclusive strategies that organizations can pursue in attempting to ensure their survival and continued growth. One is to concentrate on improving the efficiency of the internal transformation processes . . . . A second strategy is to attempt to improve or ensure favorable exchanges with external organizations through political actions taken vis á vis these organizations . . . It is likely that most organizations employ both these strategies at one time or another.

6. The strategy of cooptation involves exchanging (something) . . . for some commitment for continued support from the external organization . . . Cooptation, as a tactic, is likely to be utilized when . . . (it) is sufficient to solve the organization's problems of dealing with the external organization . . . Cooptation is used as a rational response to environmental exigencies.

7. . . . hypothesized that 1) organizations that have larger capital requirements will be more likely to have a greater percentage of their board of directors composed of representatives from financial institutions . . . (and) 6) the percentage of attorneys on an organization's board will be directly related to whether or not the organization is regulated on a national basis.

8. The hypotheses (nine in number) . . . were tested using a random sample of eighty corporations drawn from the Dun and Bradstreet Reference

Book of Corporate Managements, 1969 . . . (and) the companies tend to be large in size.

9. Most of the variables in the hypotheses are operationalized in a straightforward manner. The need for access to capital markets is represented by the debt to equity ratio for the organization . . . All simple correlations are computed based on the Spearman correlation coefficient formula, under the assumption that the data are defined only on an ordinal scale.

10. The results (of the empirical correlations) are strikingly supportive of the hypotheses . . . The percentage of board members representing financial institutions is significantly related to the need for access to external capital, as measured by the debt-equity ratio. The Spearman rank order correlation between these two variables is 0.21, which is statistically significant at the 0.04 level . . . The appearance of attorneys on the board of directors is also as anticipated. The percentage of attorneys is positively related . . . to the occurrence of national . . . regulation (Spearman coefficient is 0.18, significant at the 0.05 level).

11. While the results presented thus far support the notion of the use of the board of directors as a vehicle for dealing with the external environment, and most of the specific hypotheses were confirmed, how important are these results in the context of the large amount of residual unexplained variance? . . . only about one-third of the variation can be explained. One possible explanation for this is that some people may believe that directors are unimportant in the organization. If, however, either directors matter, or more to the point, the extent of the organization's inside-outside orientation matters, then some consequences should be evident for those

organizations that do or do not match well with environmental requirements. Specifically, it is hypothesized that (10) organizations that deviate relatively more from a preferred inside-outside director orientation should be relatively less successful when compared to industry standards than those that deviate less from a preferred board composition.

12. Bowman ("Consistency and Optimality in Managerial Decision Making," 1963) in an industrial scheduling context, has noted that while individual manager estimates may be far from optimal, these estimates pooled over time, or over managers, frequently give optimal, or nearly optimal results. For an optimal inside-outside director relationship the values computed by (a multiple regression equation with percentage inside, PI = f (Size in millions of dollars, (S), debt to equity ratio, (D), and dummy variables indicating whether locally, (LR), or nationally, (NR) regulated) for each company were selected. The equation represents the pooled experience of some eighty randomly sampled companies. It was believed that the resulting relationship would more closely approximate a preferred relationship than any single datum point.

13. Hypothesis 10 was tested as follows. The absolute value of the difference between the actual percentage of insiders and the predicted percentage was computed for each company, (DIF) . . . when compared to industry standards . . . deviations from the predicted relationship are very signficantly correlated with substandard industry performance, on either measure of financial effectiveness (Income/Sales, Spearman coefficient -0.30, significance of 0.005; Income/Equity, Spearman coefficient -0.295, significance of 0.006). Firms that deviated from the inside-outside

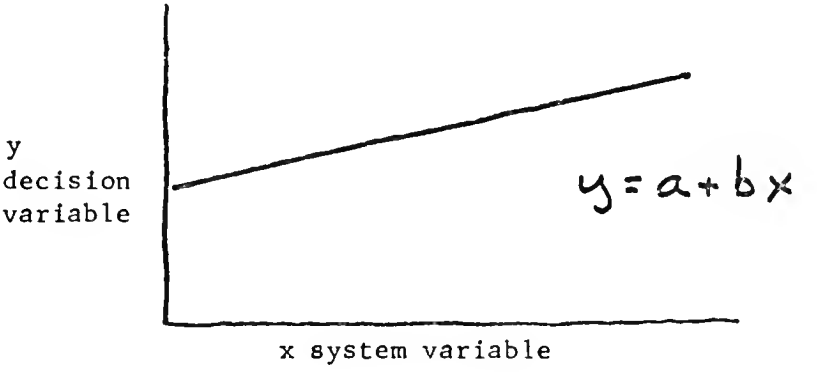
orientation they were predicted to have from (the multiple regression equation) performed poorly, and the greater the deviation, in general, the more poorly they performed, relative to standards for their industry.

Consistency and Optimality in Managerial Decision Making (all statements are quotations from the Bowman, 1963, article)

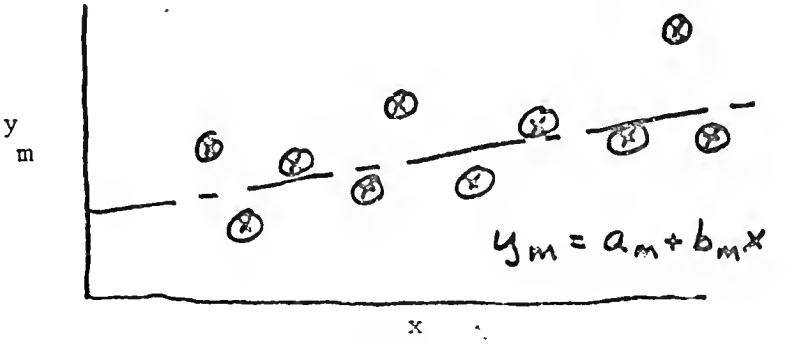
1. . . . that managerial decisions might be improved more by making them more consistent (from one time to another) than by approaches purporting to give "optimal solutions" to explicit cost models . . . especially where intangibles . . . must otherwise be estimated or assumed.

2. (Because the research testing the ideas here on aggregate production and employment scheduling, and then economies of plant scale, and finally repair inventories, is quite involved multivariate analysis with hyperplanes in hyperspace, several simple sketches may help;

a) An Operations Research Decision Rule

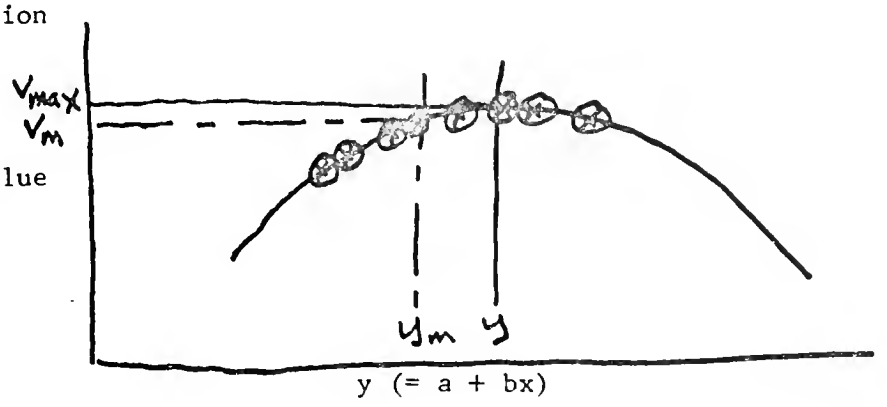


b) Management Behavior



Each point in the space has been an actual management decision, and the "decision rule" fit to these decision points by multiple regression will approximate, but not perfectly, the operations research decision rule, $y = a + bx$, and the coefficients "a_m" and "b_m" will be "management coefficients."

c) Value Function



The "management coefficients" rule will have a small penalty on the value function, $V_{max} - V_m$, due to the average bias in the behavior, $y - y_m$, but not as much damage as the aggregate of the individual decisions represented by the ⊗'s. No implication is suggested that the value or damage function is symmetrical. In fact in many cases, including those in this paper such as plant scale, it is clearly not symmetrical).

3. An attempt at something like an axiomatic treatment of these concepts is presented . . . :

a) Experienced managers are quite aware of and sensitive to the criteria of a system.

b) Experienced managers are aware of the system variables which influence these criteria.

c) Managers, in their present positions through a process of natural screening, make decisions, i.e., implicitly operate decision

rules, with a sense and intuition which relates the variables to the criteria imperfectly - but (with behavior which is) more erratic than biased.

d) Most cost or criteria surfaces as a function of the decision variables are shallow, dish-shaped at the bottom (top) and even with bias in the manager's behavior, it is the far out (variance) examples of behavior which are really expensive or damaging.

e) If managers' behavior had paralled the decision rules with their average or means coefficients, their experience would have been better according to the (their) criteria.

4. It seems useful to attempt an explanation of why decision rules derived from management's own average behavior might yield better results than the aggregate behavior itself (half a dozen empirical studies have demonstrated this to be the case). Man seems to respond to selective cues in his environment - particular things seem to catch his attention at times . . . , while at other times it is a different set of stimuli. Not only is this selective cueing the case, but a threshold concept seems to apply. He may respond not at all up to some point and then overrespond beyond that. It is this type of behavior which helps explain the variance in the organization's . . . behavior.

5. If the ("management coefficients") theory can be verified where it is felt that the system criteria can be measured (as in the cases presented in this paper), then some assurance might exist for using it where the criteria can't be measured. (Footnote) . . . March and Simon, Organizations, (1958) (state) . . . "since there is no reason to suppose that any technique

of decision-making . . . will bring the organization into the neighborhood of a genuine 'optimum' the search for decision mechanisms can not take criteria of optimization too seriously, but must seek 'workable' techniques for satisficing . . ."

6. There seems to be no apparent reason why these ideas should apply to production only and not marketing, or industrial organizations only and not governmental, or even mico economic problems only and not macro economic as well. But, perhaps this overstates the case.

Is Pollution Profitable? The Case of the Pulp and Paper Industry (for convenience, the original draft circulated is used rather than the published paper), (all statements are quotations from the Bragdon and Marlin paper).

1. Corporate executives who show environmental concern and also have high profits . . . have the approval of both environmentalists and the soldiers of capitalism. Is this happy coincidence of virtue and reward likely? The orthodox view is that there is a tradeoff between social concerns and profit, and that executives who show concern for environmental problems are doing so at the expense of their shareholders . . . Specifically, this paper tests the negative hypothesis that social responsibility is necessarily unprofitable, i.e., the hypothesis that firms in the pulp and paper industry which have had good records in installing anti-pollution equipment have been the least profitable.

2. To anticipate our results, we find that this hypothesis is untenable. The counter-hypothesis, that a good pollution control record is associated with high profits, is supported. There are two types of explanations for the relationship. The first is that good (and profitable) managers are aware of

macro-economic and political developments in the United States and have anticipated sterner public attitudes toward pollution; by staying ahead of the law they have won both goodwill and time. The second is that there is a wide range of secondary effects which raise revenues and reduce costs . . .

3. Information on the degree of pollution control introduced by pulp and paper companies is taken from a survey of 131 mill locations operated by 24 companies in the United States, conducted by the Council on Economic Priorities (C.E.P., Paper Profits, 1971, researched and written by L. Allan, E. K. Kaufman, and J. Underwood). The pollution record of 17 of these companies' paper and pulp operations was compared to their (return on equity, return on capital investment, and earnings per share growth) . . . The independent variable, pollution control adequacy, is measured by three indices derived from the C.E.P. study. The indices go somewhat beyond the information presented by the C.E.P., in order to summarize and quantify it. The . . . indices represent the percentage of plants operated by a firm that have an adequate degree of pollution control in four categories - one measure of water pollution control and three measures of air pollution control, particulate, gas, and odor. Index A weights water twice as heavily as each of the other three, since water pollution is more expensive to control . . . The dependent variable, earnings, is measured in five different ways (including) . . . average return on equity (ROE) 1965-70.

4. The study was complicated by two considerations. First, some of the companies were heavily involved in mergers during the 1965-70 period . . . Second, the proportion of pulp and paper sales to the total sales of the different firms varies.

5. Results . . . Correlations between pollution control ratings and financial performance are measured in terms of "signs" and "coefficients." In all of the five measures of financial performance the signs indicate a positive correlation with pollution control, whereas the conventional theory that E = -f(C) would be expected to produce a strong negative correlation. The correlation coefficients . . . are not high enough to substantiate the hypothesis that Indices A and B are strongly related to measures of profitability, but they do challenge the counter-hypothesis that an absence of environmental concern is profitable.

6. When we exclude the firms which were heavily involved in mergers, the picture is even clearer . . . In the new results . . . fully two-thirds of the coefficients are significant at the 95% confidence level . . . All of the pollution control indices correlate at the 95% confidence level or higher with . . . ROE 1965-70. This is a resounding denial of the original hypothesis, and a strong support for the counter-hypothesis, that pulp and paper firms which have shown a high degree of pollution control performance have also turned in high profit performance.

7. Of the two kinds of explanations for the relationship between environmental responsibility and profitability, the authors place most weight on the macro-economic explanation, that good managements are aware of changes in society and try to operate on a basis that is sustainable for a long period in the future.

The Neck of the Hour-Glass

The research papers preceeding and relevant to this paper have now been "briefed" for the reader. It is time to put them together and move on. If

it is true that good managements cope with a complex set of environmental factors and uncertainties by showing "an appropriate concern," manifested by "an adequate level" of response (as argued in Bowman's "Corporate Social Responsibility and the Investor" paper) and if a mean or median response is more "successful" (as argued in the Pfeffer and other Bowman paper), then an average response to pollution control in the pulp and paper industry should be associated with firms having the highest profitability (ROE).

The companies for which Bragdon and Marlin provide a full set of data (15 out of their 17) were reexamined under the above hypothesis. For Index A of pollution control (described earlier), which ranged from 21 (low) to 96 (high), the average was calculated to be 49.6. A group of four companies had an index rating of about average (± 10% around the average). Five companies had an index 20% or more above this average, and six firms had an index of 20% or more below this average. These firm groups along with their ROE's are presented in Figure 3.

	Pollution Control Index		
	Low (21-37) 6 firms	Average (50-53) 4 firms	High (61-96) 5 firms
Median ROE '65-70	9.8%	11.9%	10.3%
Mean ROE '65-70	9.8%	11.7%*	10.7%

Figure 3

*An adjustment was necessary to the ROE for one firm, Georgia-Pacific, (from 15.8 to 13.8) because of an apparent mis-copying or mis-typing from the source given, Forbes Magazine, January 1, 1971. The change reduced the mean from 12.2% to 11.7%, but did not change the median. For reasons suggested by this problem, medians will be used henceforeward because they are less subject to small errors as well as measurement "sports."

The (newer) hypothesis is supported by the data, as are the relationships with return on capital (ROC), 1965-70, and also earnings per share growth (EPS G) for 1965-70. All three profitability measures show the inverted U-shape with the pollution control index, and means and medians all show the same inverted U-shape form. That is, six sets of boxes all show

.

Because (a) the data in this situation are few, (b) the averages are close, and (c) the variances are large, and a non-parametric test for statistical significance was desired, the following test was made. Each firm in the "average" pollution control group was tested against each firm in the two out-lying groups for a matched pair ROE comparison. This gave 44 tests (4 x 11). With the null hypothesis that there is no real difference between the groups one would "expect" 22 favorable and 22 unfavorable comparisons. In fact the test showed 30 favorable, 13 unfavorable, and one tie. The level of statistical significance of these findings is moot.*

*The 70% favorable results (30/43) are difficult to place into a context of statistical significance without substantial simulation. Because of the multiple use of the cases here, the matched-pair tests are not independent and their distribution is not the true binomial, even though the statistic (70%) is unbiased. To get a true significance test one would have to generate the empirical distribution of four against eleven for many trials, all taken randomly from the same population, i.e., the null hypothesis.

Making an adjustment for the size of the companies, i.e., five year average annual sales, the larger half had slightly higher ROE's on the average than the smaller companies, i.e., 11.0% vs. 10.3%. Factoring this standardization/normalization into the matched-pair comparisons (4 x 11) yields 32 "correct" and 12 "incorrect" comparisons (73%), a little stronger rejection of the null hypothesis. This set of data, using n = 4 for the binomial, an overly stringent test of the null, is significant only at the 18% level. Solving for the "n-equivalent" for the binomial which makes the 73% significant at the 5% level yields n = 13.4.

Considering the fact that there appeared to be a moderate effect for size (average sales, 1966-70) of the company on profitability (ROE), the following contingency table test was made in conjunction with the pollution control index as shown in Figure 4.

Size (Sales in million dollars)

Return on Equity (ROE)	over 800	under 800
10.3% and higher	4	3
10.2% and lower	3	5

(Within the table are shown the number of companies)

Figure 4

Admittedly this 2 x 2 contingency table does not show a strong "size effect." What is interesting, and the reason it is shown, is that for the six "sports," three each in the "unanticipated" boxes, five of these six can be accounted for by the hypothesis of the preferred average position in pollution control; (this is analagous to a 2 x 2 x 2 contingency table). All three of the companies with smaller ROE than size would suggest were in the outlying regions on pollution, two highest and one lowest. Two of the three companies in the other box, where ROE is larger than size would suggest are in the middle group in pollution control. In other words,

83.3% (5/6) of the "deviant" behavior in Figure 4 is explained by the pollution control hypothesis.*

Note, because it will reappear later, that the average ROE for the firms rated highest on pollution control (10.3% median) is higher than the ROE for the firms rated lowest on pollution control (9.8% median) - the distribution of ROE medians is asymmetrical. This helps explain the Bragdon and Marlin results - which are not subject to argument here, i.e., separated into only two groups, the firms rated higher on pollution control show higher ROE's.

The Food-processing Industry Study

Wishing to test these ideas against a larger set of data, a different industry, a somewhat different time frame, and a more inclusive view of corporate social responsibility, the food-processing industry was chosen. The food processing industry is interesting, quite large, has many quite varied companies, makes some sales to households, has brand names, and would have potential pollution, quality, and fair employment practices issues. While the latter are examples of negative potential externalities, there was evidence of positive potential externalities as well.

Moody's Industrial Manual, 1973, was used as the source of company names in the food-processing industry. There were five sub-groups: Food -

*The probability of this occurrence, given the null hypothesis that there is no real difference between the populations (ROE's) is a combinatorial function of (11/15), the proportion of outlying firms (highest and lowest on pollution control), and the proportion of average firms (4/15), probably treated as sampling without replacement. Using the binomial test of the null hypothesis of equal likelihood, an admitted simplification, in this conditional situation (size-effect), and the resulting statistic of 83.3% (5/6), yields a level of significance of 5.0%.

Cereal and Grain, Food - Fishery Products, Food - Miscellaneous Products, Food - Vegetables and Fruits, and Food - Vegetable Oil Products. The total list of company names was 217, with about 50 multiple counts of the same names (because of the sub-groups), about 25 foreign companies which were excluded, five companies for which addresses were unavailable, and about 35 companies which had less than half of their business in the food industries (e.g., ITT, SCM, RCA) which were also excluded.

The 1973 annual reports for the remaining companies were solicited (about 100 net), and 82 have been received and coded. The methodology here was to code the prose of each report, line by line, as to whether issues of corporate social responsibility were being discussed - actions, concern, expenditures, orientation, activities, etc. This discussion (as a percentage of the total prose) was to be used as a surrogate for actual company concern and activity. Two investigators, the author and his colleague, Professor Mason Haire, each and separately coded a sample of the reports as a check and were in a very close agreement. Through a number of sensitivity tests described later, it was shown that the results of the test are in no way influenced by possible coding errors.

While wishing to give the reader some feel for the very many kinds of issues discussed in the food-processing industry annual reports, and our sometimes difficult coding choices, perhaps one example must suffice. The following two paragraphs are found contiguously in the chief executive officer's letter to the shareholders at the beginning of the annual report of a large company. The first paragraph was not coded as "corporate social responsibility" discussion, while the second one was so coded:

> "The history of (Company), in particular, successfully refutes the arguments of the protectionists. We do not import finished goods produced abroad, and certainly do not exploit low-cost labor.

> We help the U.S. balance of payments by selling in markets we could not reach without building or buying foreign facilities to serve those markets. The jobs we create abroad do not affect American employment, since our export potential from the U.S. is limited by freight cost, different labelling and ingredient requirements, and high import duties and import quotas.
>
> The other issue of public interest has to do with what we call public service, and is discussed in detail in the section of this report headlined under that name. In every area of reasonable public challenge - for environmental improvements, for better nutrition, for grants and gifts, for equal opportunity, for whatever seemed appropriate in an impatient age - we responded sympathetically and quickly to the best of our abilities . . . ."

Most annual report discussions were actually easier to code than these two paragraphs. Though it is difficult to give the full flavor of the corporate social responsibility coding process, we were attempting to identify discussed efforts to either increase positive potential externalities or decrease negative potential externalities - to increase apparent social benefits or decrease apparent social costs.

It may seem a massive assumption, to the reader, that Annual Report discussion is a sensible surrogate for real activity. Both theoretical and empirical checks of this "research instrument" are warranted. The annual report is like a projective test, and it is as well an "unobtrusive measure" for this purpose. The company and the chief executive officer can address virtually any set of issues they wish, (they do not know, nor presumably care, that we are making this test). Secondly, the annual report is written essentially to the shareholder, and one should not expect unusual puffery on these issues here. Even if there is some bias, it is doubtful that there would be systematically differentiated bias by classes of companies.

An empirical test of the annual report as a research instrument for this purpose, however, was also made. A search for a list of companies "with outstanding records in social concern" was undertaken. Milton Moscowitz,

editor of Business and Society, had published such a list in the Sunday, New York Times, February 11, 1973. Moscowitz is a full time student of these issues and was to be used here as an "expert witness." His list of 14 companies satisfies his criteria associated with a larger list including (a) "we are interested in making discriminations, in singling out the achievers and the laggards;" (b) "for the past four years Business Week has singled out companies annually for business-citizenship awards;" (c) . . . "those companies which 'stand out for unusually important action in the public interests';" . . . (d) "at least three different public opinion surveys were taken, asking respondents, mainly business people, how they would rank the largest corporations in the nation on social responsibility." (All from Business and Society, Vol. 6, No. 13, July 24, 1973). The point of "expert witness" associated with all of the above quotations is stressed here because it is necessary to put the reader's mind at rest that we are not confounding our test - that Mr. Moscowitz has not simply read the annual reports (as we have done).

For each of the 14 companies on the Moscowitz list, we have chosen a matched pair (company), in the same industry and of approximately the same sales, and randomly where possible. It should be emphasized that the 14 matched-pair companies were in no sense to be considered bad or poor with respect to corporate social responsibility - they are simply the neutral/ null test cases. The test hypothesis, of course, is that the 14 Premier (Moskowitz) companies would discuss corporate social responsibility (CSR) issues and activities more in their annual reports (higher % of prose) than would their matched pairs. The test of the research instrument is positively supported by the evidence as shown in Figure 5.

	Premier Companies		Matched-Pair Companies
Median % CSR Discussion	4.25%		0.30%
Mean % CSR Discussion	4.80%		1.74%
Some CSR Discussion (Yes/total)	12/14 (86%)		7/14 (50%)
Pair-by-pair Comparison* (Higher % CSR)	9	(3 ties)	2

Figure 5

To return to the food-processing industry, the average percent discussion of corporate social responsibility in the annual reports, used as a surrogate for actual corporate responsibility, is 3.63% for the 82 reports. It is well to point out that there are clearly problems of calibration and scaling with this measure. That is, a zero percent discussion does not directly map to zero activities in corporate social responsibility (externalities and potential externalities). Neither does a 25% discussion (coding) mean that 25% of the total activities of the business deals directly with corporate social responsibility issues. Having made this point, it can be stated that it is not relevant to the hypothesis test, given in Figure 6.

*Binomial test of significance, i.e., rejection of the null hypothesis that there is no difference between populations, is at the level of 1.7% not counting ties (9/11), or at the level of 3.1% splitting ties equally (10.5/14).

The ROE (average) has been calculated for the past five years, in most cases 1969-73, in a few cases 1968-72. The figures for earnings per share, and net worth per share have been obtained from Standard & Poor's. In a few cases, the figures for the ROE calculation were unavailable from Standard & Poor's, and they were obtained from Moody's. A number of test checks were run to determine that the two sources yielded closely similar ROE's. In all cases the ROE was determined and the average for the five years unambiguously calculated after the CSR% had been coded.

Percent prose on Corporate Social Responsibility

	Low	Medium	High
	0 (51 companies)	0.1 - 9.9 (18 companies)	10.0 or higher (13 companies)
Median ROE	10.2%	16.1%	12.3%

Figure 6

The hypothesis that higher ROE is associated with an average corporate social responsibility response is clearly supported by the data.* Perhaps it

*The matched-pair comparison here was 18 x 64 = 1152 tests. If there were truly no difference between the two groups, the null hypothesis, one would "expect" 576 tests with the middle group higher on ROE and 576 tests with the outlying groups higher on ROE. The actual results were 858/1152 or 74% favorable comparisons. These tests use the same set of 18 data points for a matched-pair comparison, and therefore using the overly stringent n = 18 for a binomial test, (stringent because the 18 were matched systematically against all 64 others rather than a randomly selected set of 18), the level of significance for rejection of the null hypotheses is at the level of 2.0%, i.e., the significance of these findings is not a moot question.

is well to emphasize that really two, rather than one, theses are being demonstrated here: 1) The relationship between ROE and CSR% is the inverted U-shape form, and 2) The average CSR% for the total sample of companies is fairly close to the maximum ROE point on the curve. Once again the distribution is not symmetrical - the firms with highest corporate social responsibility, on this measure, have higher ROE's than the companies that have the lowest corporate social responsibility measure. Once again also, if only <u>two</u> groups were formed, the higher social responsibility group would have the higher ROE.

For those readers who prefer "pictures" of individual data points the following Figure 7 may be helpful (and persuasive):

% CSR Discussion

% ROE	0	0.1 - 9.9	>10.0
Above 25	1	2	2
20 - 25	4	1	
15 - 20	3	5	
10 - 15	14	1	7
5 - 10	12	3	2
0 - 5	8		1
Below 0	4	1	1

Figure 7

On the possibility that size of company might confound the test, the top half of the total set of companies (41) by sales (approximately $280 million cutoff) were tested in the same manner. They had higher measures on the average of both corporate social responsibility (% prose in annual reports),

5.27%, and slightly higher ROE's, but this large half-set also gave the inverted U-shape function, i.e., in the usual order, 10.8%, 16.1%, and 12.8%.

A number of sensitivity tests were run, and the favorable hypothesis test results are not sensitive to precise grouping. In fact, separating the companies into six classes of corporate social responsibility measures, rather than three, yields an inverted U-shaped curve of average ROE's. The results of the six sub-groups are presented below in Figure 8. A caution is necessary here because the data sets are becoming rather small.

CSR % Discussion	0	0.1 - 4.0	4.1 - 8.0	8.1 - 12.0	12.1 - 16.0	>16
Number of Observations	51	10	5	6	5	5
Median ROE %	10.2	17.1	17.1	14.5	14.7	12.3

Figure 8

Considering that the mean CSR % coding is 3.63, it appears that the maximum ROE average may be found at a point slightly higher than this figure. Whether or not there is an exact correspondence between average CSR % and maximum ROE is not the position being argued here - merely that these two positions are not very far apart.

In sum, neither size of company, nor class groupings of CSR measures challenge the results - they are robust.

Conclusions and Speculations

The food-process industry study shows a remarkable difference in ROE averages for the three subgroups derived by a couple of professors coding prose in annual reports. Corporate Social Responsibility is not enough reason to explain this difference, or to cause it, nor do we claim that it does. Just as we would not hold that profits are highest for the firms with an average response to corporate social responsibility solely due to their responsibility posture, so we would not hold that profits are as much lower as shown for firms with the highest response to corporate social responsibility solely due to this factor, (though this must at least be admitted as a possibility due to their preferences in the present or their "investments" for the future).

Profitability is the result of numerous factors. Management of a large company in today's environment is a very complex task. Those managers who are appropriately sensitive and responsive to a large number of issues, both internal and external, both relatively easily measured and virtually impossible to measure, will probably be rewarded with successful companies. Corporate Social Responsibility behavior at an adequate level, but not by itself and not uniquely, is a signal of good, sensitive, informed, balanced, reasonable, modern, negotiating, coping management. For many issues it is well to neither under-respond nor over-respond to them, to neither ignore nor to be overcome by them.

The economist would find this idea familiar, especially when it comes to the classical factors of production. He would probably even allow an

increasing returns followed by a decreasing returns curve for items such as advertising, research and development, and the use of computers. Perhaps he should now accept the possibility that his old ideas apply to (potential) externalities. Though the second discovery that average behavior is close to an optimum may come to the economist in a novel form in this research, upon reflection his concept of an equilibrium would suggest that this is where it "should" be.

While the purpose of this research report has been largely descriptive, or to grace it with a label - "positive theory," perhaps a few normative speculations will be permitted.

> "Since management as an activity or profession is probably more of a craft than anything else, it is well to point out that managers learn most/much of what they know from practice, both their own and others. Where problems are new and/or puzzling, a common (and worthwhile) question is - what are other managers doing about it? . . . If particular behavior can be shown to be rather common to most successful companies, can this particular behavior be <u>recommended</u> as appropriate? The position taken here is that, subject to strong contra evidence and analysis, well documented and consistent behavior of successful companies is a strong normative guide. Remembering that in the admittedly composite area of corporate strategy, which is synthesis more than analysis, and design more than theory, <u>practice</u> (especially that widely documented by careful analysis) is ignored only with some folly. It is a moot point whether this position is academically respectable, but it is based essentially on a Darwinian concept of survival" (E. H. Bowman, "Epistemology, Corporate Strategy, and Academe," <u>Sloan Management Review</u>, Winter 1974).

Comparative analysis is always helpful, but especially where theory is weak. For the manager searching for appropriate behavior with respect to corporate social responsibility, he could probably do a lot worse than follow the average of his industry. The estimate made here is that this would probably and paradoxically raise such an average somewhat, and this might not be so bad for either the ind idual companies, or their industry, or for society. It is undoubtedly going to be a moving average anyway, and

as shown a response somewhat larger than the average is more benign than a response somewhat smaller than the average. (To complicate the recommendation a bit, and following the "management coefficients" theory, this average is a hyperplane in multidimensional space. In the same sense as Pfeffer uses it, it is a "predicted" place from the larger peer group which is a function of all the relevant variables).

Though much information gathering by and for management will continue to be, and should continue to be, an informal process, some formal management information systems exist in most firms, especially for information internal to the firm. Information gathering and analysis on external factors also exist for virtually all firms, especially in areas like marketing. This information gathering is usually addressed to what might be thought of as the objective problem or situation. In an "age of discontinuity," the results of the research described here might suggest that more formal systems and organization arrangements be addressed to the gathering and analysis of other companies' solutions and coping mechanisms to both internal and external situations and problems. While simple average postures or solutions of a peer group (the subjective response) may not be entirely adequate for the objective and changing situation, such information may be quite beneficial. A formal comparative analysis of the firm versus its industry or peer group average behavior may be as useful as an analysis of the objective situation itself.

A somewhat wider speculation for financial economists is suggested for the study of capital asset pricing and perfect markets. Where systematic risk and covariance of returns with the general market are now explaining less of the total variance of individual security returns, perhaps they would wish to address some of their research to the difficult measurements of corporate social responsibility. While it is not maintained outright

here that such studies would show different returns as a function of corporate social responsibility - in fact disciples of the perfect market hypothesis would suggest that any such effect is already captured in security pricing by the stock market - now that some studies seem to cast doubt on the ability of systematic market risk and residuals with an expected value of zero to fully explain security returns, at least this one additional avenue for research is suggested.

A personal comment is perhaps warranted with respect to unobtrusive measures in work on corporate social responsibility or, what is to this author the larger class of problems, corporate strategy. Much of the research in these areas seems to fall into the polarization of a few clinical studies, rich in detail, or a large survey base using questionnaires, which often are subject to bias due to their "observer-effect." More work in fields like organization theory and international business is beginning to appear using readily available and unobtrusive instruments, illustrated by the annual report in this study, and it should be encouraged and supported.

It is hoped that an extention or "replication" will be addressed to the corporate social responsibility research presented here. As the earlier Management Science paper suggested, "Further questions of validity, generality, and operationality must be answered by future research." The main question for pause here is the question of generality. We clearly have to be dealing with some kind of "contingency theory." To recommend average behavior in all things seems to be beyond the pale, nor is it really intended to do so here. The circumstances under which these ideas are conditionally true or useful is still a puzzle.

Something old,

Something new,

Something borrowed,

Something blue.

The sand has run through the hour glass. The work of a decade ago on aggregate production scheduling and the management coefficients theory is clearly something old. The findings in the food industry study, and the reworking of the pulp and paper industry data, with respect to corporate social responsibility are something new. Pfeffer's work on the use of unobtrusive measures for management coping with an uncertain and potentially hostile environment, and where deviant behavior is costly, is something borrowed. It would in a way be pleasant to report that the most attention to corporate social responsibility is associated with the most profitable companies, but this is alas not (quite) the case - something blue.

Bibliography

Baumol, W. J. (Likert, Renis)
1970 A New Rationale for Corporate Social Policy, Supplementary Paper No. 31, Committee for Economic Development, New York.

Bowman, E. H.
1963 "Consistency and Optimality in Managerial Decision Making," Management Science, Vol. 9, No. 2.

1971 University Investing and Corporate Responsibility, Massachusetts Institute of Technology, (monograph report).

1972/1973 "Corporate Social Responsibility and the Investor," Journal of Contemporary Business, Winter, Vol. 2, No. 1.

1973 "Epistemology, Corporate Strategy, and Academe," Sloan Management Review, Winter, Vol. 15, No. 2.

Bragdon, J. H., Jr. and Marlin, J. A. T.
1972 "Is Pollution Profitable?" Risk Management, April.

Business and Society
1973 "39 Socially Responsible Corporations," Vol. 6, No. 13, July 24, San Francisco.

Council on Economic Priorities
1971 Paper Profits: Pollution in the Pulp and Paper Industry, New York.

Cyert, R. M. and March, J. G.
1963 A Behavioral Theory of the Firm, Prentice-Hall, Inc.

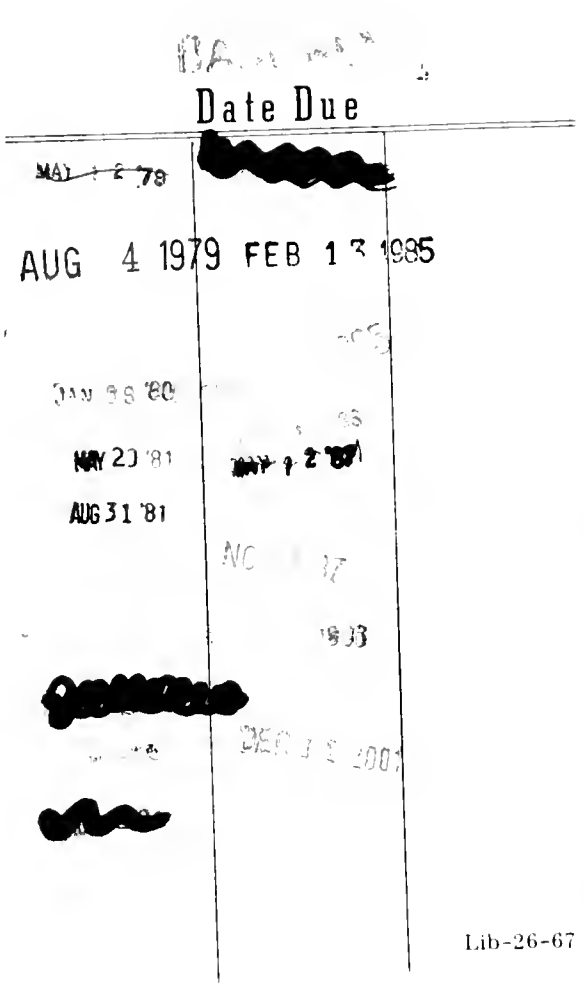
March, J. G. and Simon, H. A.
1958 Organizations, John Wiley and Sons.

Moscowitz, M.
1973 "Why 'Good Guy' Funds Have Flopped," New York Times, February 11.

Pfeffer, J.
1972 "Size and Composition of Corporate Boards of Directors: The Organization and Its Environment," Administrative Science Quarterly, June, Vol. 17, No. 2.

Selznick, P.
1949 TVA and the Grass Roots, University of California Press.

Thompson, J. D.
1967 Organizations in Action, McGraw Hill.


Date Due
AUG 4 1979
FEB 1 3 1985
JAN 28 '80
MAY 20 '81
AUG 31 '81
Lib-26-67